Patent Claims

1. A device for inspecting an object (2), having a bright field illumination beam path (4) of a bright field light source (5) formed with respect to an imaging optical arrangement (3), having a dark field illumination beam path (6) of a dark field light source (7) formed with respect to the imaging optical arrangement (3), the object (2) being imaged onto at least one detector (8) by means of the imaging optical arrangement (3) and the object (2) being illuminated simultaneously by the two light sources (5, 7), characterized in that the light serving for dark field illumination is pulsed, and in that the pulse intensity of the light serving for dark field illumination is at least one order of magnitude greater than the intensity - relative to a pulse interval - of the continuous light serving for bright field illumination.

2. The device as claimed in claim 1, characterized in that the pulse intensity of the light serving for dark field illumination is 10 to 10 000 times greater than the intensity - relative to a pulse interval - of the continuous light serving for bright field illumination.

3. The device as claimed in claim 1 or 2, characterized in that the dark field light source (7) emits pulsed light.

4. The device as claimed in one of claims 1 to 3, characterized in that the dark field light source (7) emits continuous light that can be subdivided into individual pulses by means of at least one optical component (13).

5. The device as claimed in one of claims 1 to 4, characterized in that the optical component (13) has a

shutter, a rotating shutter wheel, an electro-optical or an acoustic-optical modulator.

6. The device as claimed in one of claims 1 to 5, characterized in that the read-out and/or evaluation readiness of the detector (8) and/or of the detection system (16) is synchronized with the pulse sequence of the light serving for dark field illumination, preferably on the basis of a pulse sequence signal of the dark field light source (7) or of a control signal of the optical component (13).

7. The device as claimed in claim 6, characterized in that a delay circuit (18) is provided for synchronization purposes.

8. The device as claimed in one of claims 1 to 7, characterized in that the optical axis (25) of the bright field illumination beam path (4) is essentially perpendicular to the surface (26) of the object (2) to be inspected or is essentially perpendicular to the object plane of the imaging optical arrangement (3).

9. The device as claimed in one of claims 1 to 8, characterized in that the optical axis (27) of a detection beam path (9) running between object (2) and detector (8) is essentially perpendicular to the surface (26) of the object (2) to be inspected or is essentially perpendicular to the object plane of the imaging optical arrangement (3).

10. The device as claimed in one of claims 1 to 9, characterized in that the optical axis (28) of the dark field illumination beam path (6), at least in regions, is coaxial with the optical axis (25) of the bright field illumination beam path (4) and/or coaxial with the optical axis (27) of the detection beam path (9).

11. The device as claimed in one of claims 1 to 9, characterized in that the optical axis (28) of the dark field illumination beam path (6) has an angle (29) of between 5 and 90 degrees with respect to the optical axis (25) of the bright field illumination beam path (4) and/or with respect to the optical axis (27) of the detection beam path (9).

12. The device as claimed in one of claims 1 to 11, characterized in that the bright field light source (5) is designed as a white light source, preferably a DC lamp.

13. The device as claimed in one of claims 1 to 12, characterized in that the dark field light source (7) is designed as a xenon flash lamp, a laser or an LED (Light Emitting Diode) or an LED arrangement.

14. The device as claimed in one of claims 1 to 13, characterized in that the detector (8) is designed as a CCD camera.

15. The device as claimed in one of claims 1 to 14, characterized by a coupling to a control computer, which preferably has a storage unit on which the detected object data can be stored.

16. A method for inspecting an object (2), the object (2) being illuminated simultaneously with a bright field light source (5) for bright field illumination, on the one hand, and with a dark field light source (7) for dark field illumination, on the other hand, and the object (2) being imaged onto at least one detector (8) by means of an imaging optical arrangement (3), preferably for operating a device as claimed in one of claims 1 to 16, characterized in that the light serving for dark field illumination is pulsed, the pulse intensity of the light serving for dark field

illumination being at least one order of magnitude greater than the intensity - relative to a pulse interval - of the continuous light serving for bright field illumination.

17. The method as claimed in claim 16, characterized in that the object inspection is carried out automatically.

18. The method as claimed in claim 16 or 17, characterized in that the device (1) is coupled to a positioning system (30) that positions the object (2), and in that object regions selected by means of the positioning system (30) are automatically positioned in the inspection position.